International Journal of Clinical Trials
Jain R et al. Int J Clin Trials. 2022 May;9(2):77-83
http://www.ijclinicaltrials.com
pISSN 2349-3240 | eISSN 2349-3259
DOI: https://dx.doi.org/10.18203/2349-3259.ijct20220364

Original Research Article

Depression in adults with epilepsy attending epilepsy clinic in tertiary care hospital: an observational study

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Received: 18 October 2021
Revised: 01 February 2022
Accepted: 02 February 2022

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ABSTRACT

Background: Epilepsy is a chronic neurological disorder characterized by recurrent unprovoked seizures. Depressive disorders are the most common psychiatric co-morbidity in patients with epilepsy. Early detection and treatment improve overall health related quality in these patients.
Methods: A prospective cross sectional observational study was conducted across 6 months (December 2018-May 2019) in a tertiary care hospital. The present study included 50 registered patients and various socio-demographic factors like age, sex, marital status, literacy, drug compliance and status of seizure control etc. were evaluated in regards to prevalence and severity of depression.
Results: Out of 50 patients, 27 patients (54%) showed signs of depression. Out of which 10 patients (20%) showed signs of mild depression, 6 patients (12%) showed signs of moderate depression, 7 patients (14%) showed signs of moderately severe depression whereas 4 patients (8%) showed signs of severe depression and there was a strong association of drug compliance, current epilepsy status and last seizure episode with various degree of depression.
Conclusions: Depression is an illness with a significant morbidity and mortality. Its association with epilepsy is very strong. Various factors contribute to depression which include compliance of drugs, last seizure episode, current status of epilepsy, etc. Unfortunately, depression among epileptics is very much under diagnosed and therefore untreated. A through psychiatric assessment should be done in these patients with epilepsy for depression and appropriate treatment should be instituted.

Keywords: Epilepsy, Depression, Seizure, Adults, Drug compliance

INTRODUCTION

Epilepsy is a chronic disorder, the hallmark of which is characterized by recurrent, unprovoked seizures. A person is diagnosed with epilepsy, if they have two unprovoked seizures (or one unprovoked seizure with the likelihood of more) that were not caused by some known and reversible medical condition like alcohol withdrawal or extremely low blood sugar.

Of the 70 million persons with epilepsy (PWE) worldwide, nearly 12 million PWE are expected to reside in India; which contributes to nearly one-sixth of the global burden. The overall prevalence (3.0-11.9 per 1,000 population) and incidence (0.2-0.6 per 1,000 population per year) of epilepsy in India are comparable to the rates of developed countries despite marked variations in socio-economic and cultural factors.[1,2]

Patients with uncontrolled seizure are more likely to suffer from depression. Despite their relatively high

prevalence, depressive disorders remain unrecognized and untreated in a large proportion of patients.[3]

Depression can directly increase seizure frequency through the mechanism of sleep deprivation; failure to recognize depression or inadequate treatment can lead to suicide. Depression also often worsens concordance with antiepileptic medication. Epilepsy clinics often fail to diagnose depression in their patients and, even when they do, many remain inadequately treated.[4]

Under recognition and under treatment of major depression in epilepsy is a recognized problem of considerable magnitude, documented in both adults and children /adolescents treated in tertiary care settings as well as in community-based settings. The importance of detection and adequate treatment of depression is underscored by the fact that suicide has one of the highest standardized mortality rates of all causes of death among persons with epilepsy. In addition, depression in epilepsy is associated with increased health care utilization and is a powerful correlate of overall health related quality of life, explaining more variance in quality of life than many epilepsy-related factors including seizure frequency.[5,6]

A prospective cross sectional observational study was conducted from December 2018-May 2019 in the department of medicine and psychiatry at government medical college and hospital, Miraj, Maharashtra. In this study 50 registered epileptic patients were studied who were regularly attending the clinic. Various socio-demographic factors like age, sex, marital status, literacy, socio-economic status, onset of epilepsy, family history of epilepsy, drug compliance and status of seizure control etc. were studied in relation to prevalence and severity of depression.

Statistical methods and tool used

All patients who were willing to participate were recruited and a written informed consent was taken. Socio-demographic and clinical details were recoded using a specifically designed proforma. Institutional ethical committee clearance was taken before initiating the study. The patient health questionnaire (PHQ) is used as a screening and diagnostic tool for assessment of depression in the present study. A nine-item version (PHQ-9) was used for screening, diagnosing, monitoring and measuring the severity of depression. The PHQ-9 incorporates DSMIV depression diagnostic criteria with other leading major depressive symptoms into a brief self-report tool. The following inclusion and exclusion criteria as were included:

Inclusion criteria

All patients diagnosed with epilepsy attending the epilepsy OPD, all patients above 18 years of age, patients willing to give informed consent for the study, patients able to comprehend the questionnaire, patient educated above 7th standard were included in the study.

Exclusion criteria

Patients with diagnosed psychiatric disorders, patients with medical comorbidities, patients not willing to give informed consent for the study, patients not able to comprehend the questionnaire and patients with no formal education were excluded from the study.

Aims and objectives

The aim of the study was to investigate relationship between depression and epilepsy in patients in a tertiary care hospital.

The objective of the study was to study depression in patient with epilepsy attending epilepsy, to study prevalence and severity of depression in epileptics and to study relationship between socio-demographic variables, depression and epilepsy.

RESULTS

Demographic details

Age, sex and marital status

In this study out of 50 registered patients 32 were males (with a mean age of 41.22 years) and standard deviation is 16.366 years and 18 were females (with a mean age is 39.17 years) and standard deviation is 14.386 years. Amongst these 50 patients, 18 patients (36%) were single, 26 patients (52%) were married, 2 patients (4%) were widows and 4 patients (8%) were separated.

Family history and onset of epilepsy

Out of 50 patients, 4 patients (8%) had a positive family history of epilepsy and remaining 46 patients (92%) didn't have any family history. The 30 patients (60%) had onset after 18 years of age, whereas 20 patients (40%) had onset before 18 years of age.

Compliance of antiepileptic drugs and current status of seizure

Out of 50 patients, about 42 patients (84%) had good compliance and had taken drugs regularly and remaining 8 patients (16%) had poor compliance and had missed their drugs. About 35 patients (70%) were seizure free whereas remaining 15 patients (30%) still had uncontrolled seizure episodes.

Last seizure episode

The 13 patients (26%) had a last seizure episode within a month, other 15 patients (30%) had their last episode within a period of 1M-1Y whereas remaining 22 patients

(44%) had last seizure episode more than one year.

Severity of depression

Out of 50 patients, 27 patients showed various degree of depression. 10 patients (6 males and 4 females) had mild depression, 6 patients (4 males and 6 females) suffered from moderate depression, and 7 patients (5 males and 2 females) suffered from moderately severe depression whereas 4 patients (1 male and 3 female) suffered from severe depression.

Relations between various factors and severity of depression

Sex and severity of depression

Out of total male patients, 6 patients shows the symptoms of mild depression, and 1 patient show sign of severe depression. While among female patients, 4 patient shows signs of mild depression, and 3 patients showed sign of severe depression.

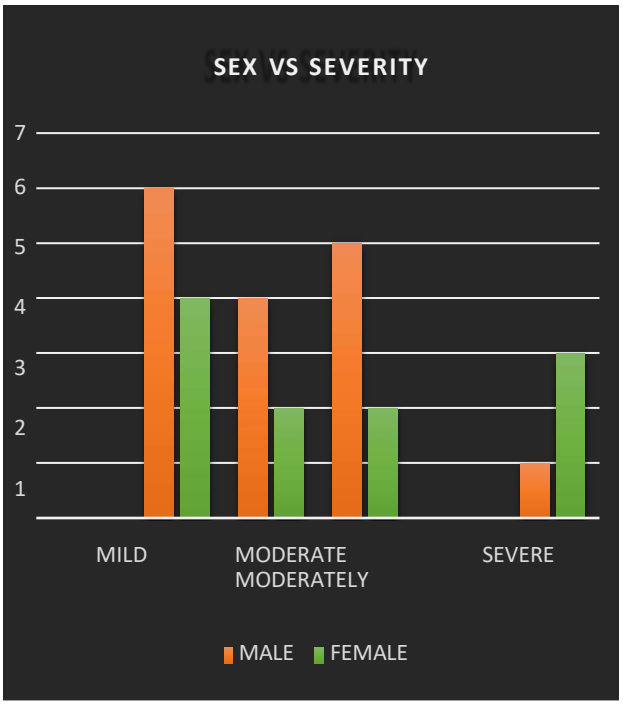

Figure 1: Sex and severity of depression.

Literacy versus severity of depression

Amongst total illiterate patients, 1 patient shows the symptoms of mild depression and none show sign of severe depression and those had their primary and secondary education (i.e., up to 10th standard), 9 patient shows signs of mild depression, 3 patients showed sign of severe depression. On the other hands patients with higher education (>10th standard), no patient shows the symptoms of mild depression and only 1 patient show sign of severe depression.

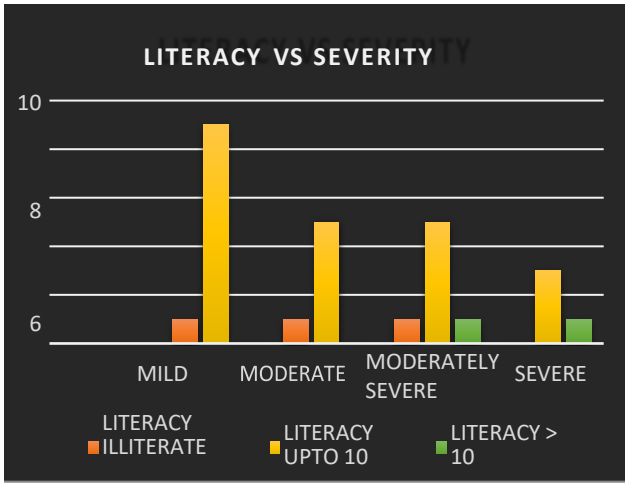

Figure 2: Literacy versus severity of depression.

Employment status versus severity of depression

Amongst employed patients, 6 shows the symptoms of mild depression, 1 patient show sign of severe depression while among unemployed, 4 patient shows signs of mild depression, 3 patients showed sign of severe depression.

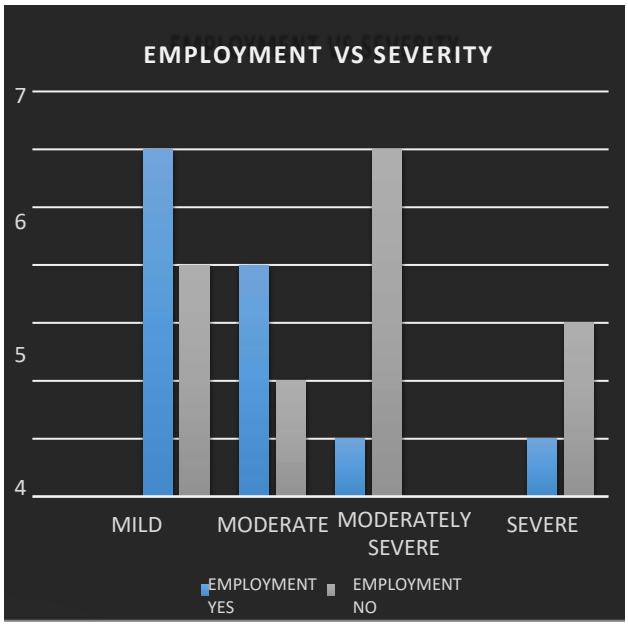

Figure 3: Employment status versus severity of depression.

Socio-economic status vs severity of depression

Out of total patients those who belonged to lower socio-economic status, 9 patients show the symptoms of mild depression, 4 patients show sign of severe depression while those who belonged to middle socio-economic status, 1 patient shows signs of mild depression, no patient showed sign of severe depression.

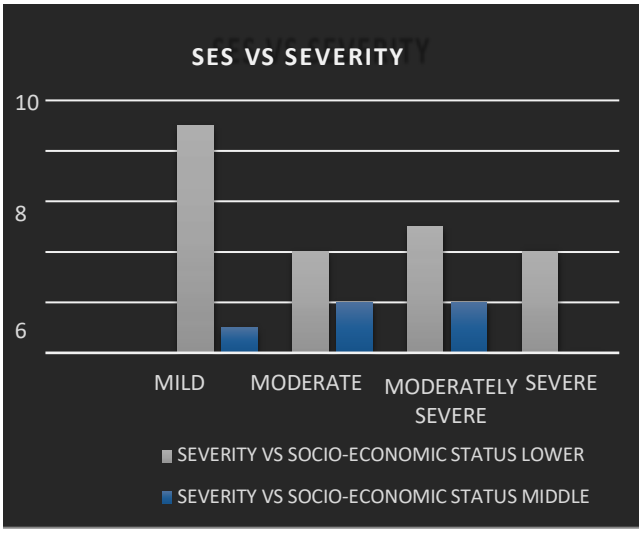

Figure 4: Socio-economic status versus severity of depression.

Marital status versus severity of depression

Six patients who were single, showed the symptoms of mild depression, 1 patient showed sign of severe depression while amongst married, 3 patient showed signs of mild depression, 3 patients showed sign of severe depression. In the widow only 1 patient showed the symptoms of mild depression and amongst those who were separated only 1 patient showed signs of moderately severely depression.

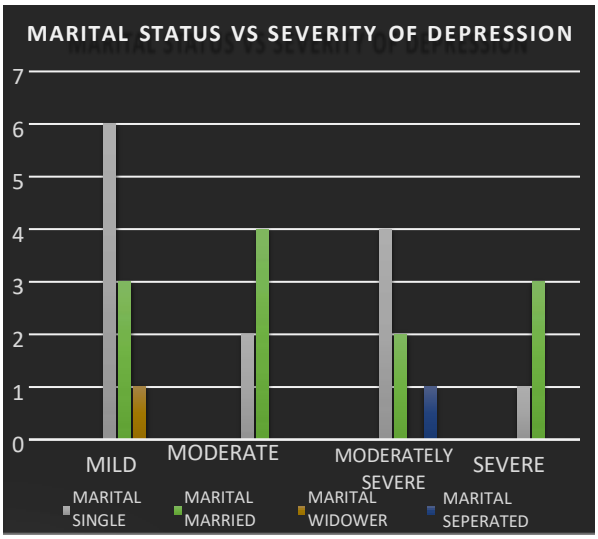

Figure 5: Marital status versus severity of depression.

Family history versus severity of depression

Patients with positive family history of depression, 1 patient in each group showed signs of mild, moderate and moderately severe depression but none showed signs of severe depression. Those with negative family history of depression, 9 patients showed signs of mild depression, 4 patients showed sign of severe depression.

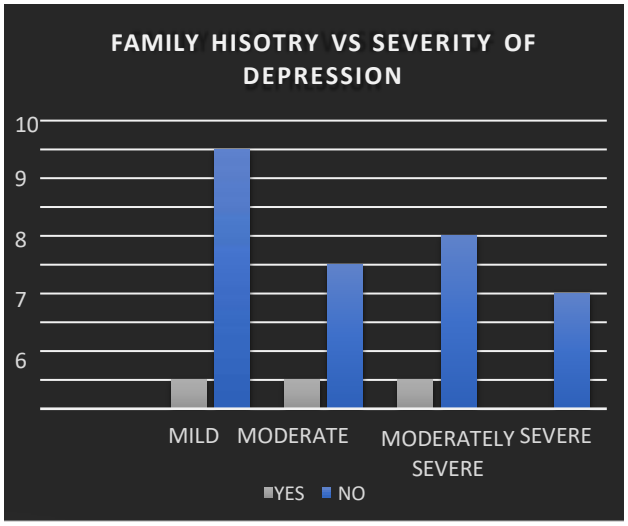

Figure 6: Family history versus severity of depression.

Onset of epilepsy vs severity of depression

In the group with onset of epilepsy after the age of 18 years, 4 patients showed the symptoms of mild depression, 4 patients showed sign of severe depression and in group with onset of epilepsy before the age of 18 years, 6 patients showed signs of mild depression while none showed sign of severe depression.

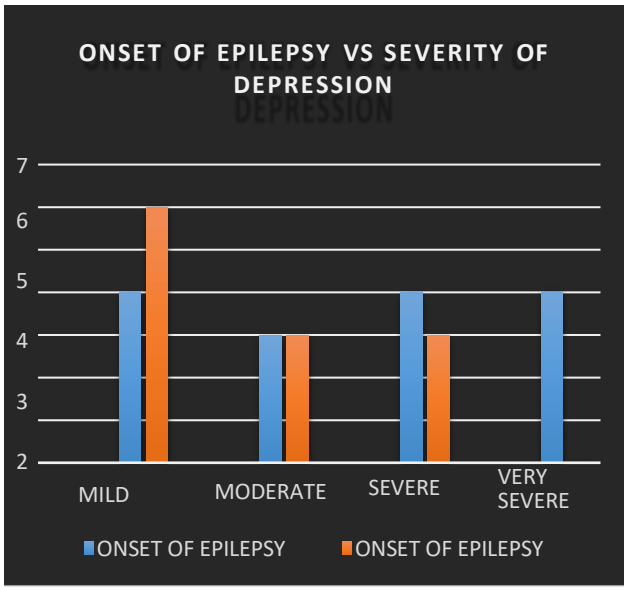

Figure 7: Onset of epilepsy versus severity of depression.

Compliance versus severity of depression

Out of all patients those with good compliance of antiepileptic drugs, 9 patients showed the symptoms of mild depression, 2 patients showed sign of severe depression while those with poor drug compliance, 1 patient showed signs of mild depression and 2 patients showed sign of severe depression.

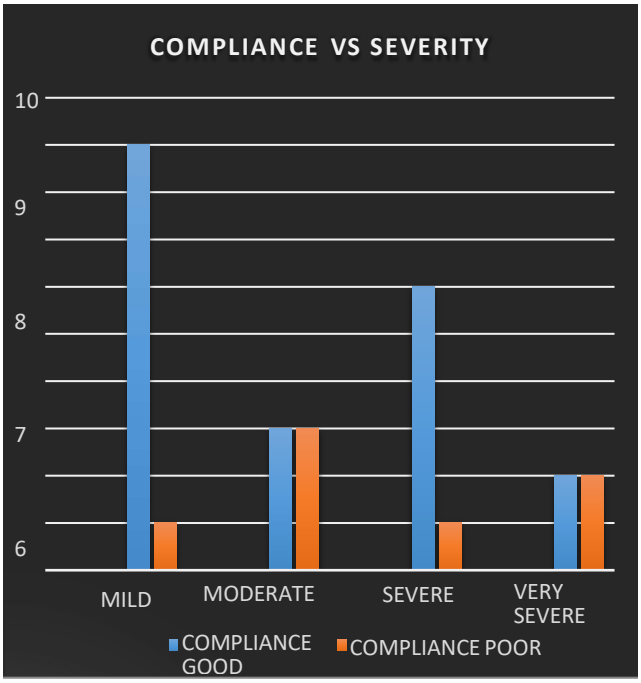

Figure 8: Compliance versus severity of depression.

Current status versus severity of depression

Out of all patients who had seizure free status, 6 patients showed the symptoms of mild depression, no patient showed sign of severe depression. But in group with uncontrolled seizure condition, 4 patient showed signs of mild depression, 4 patients showed sign of severe depression.

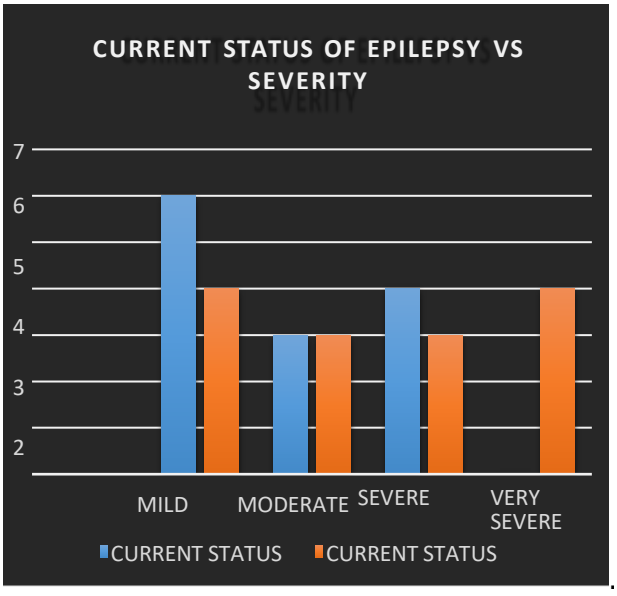

Figure 9: Current status versus severity of depression.

Last episode of seizure

Out of total patients who visited Epilepsy OPD with last episode of seizure within a period of 1 month, 3 patients showed the symptoms of mild depression, 4 patients showed sign of severe depression. Out of all patients who visited epilepsy OPD with last episode of seizure within a period of 1 month to 1 year, 6 patients showed signs of mild depression, no patient showed sign of severe depression. Out of total patients who visited Epilepsy OPD with last episode of seizure more than a year, 1 patient showed the symptoms of mild depression, no patients showed sign of severe depression.

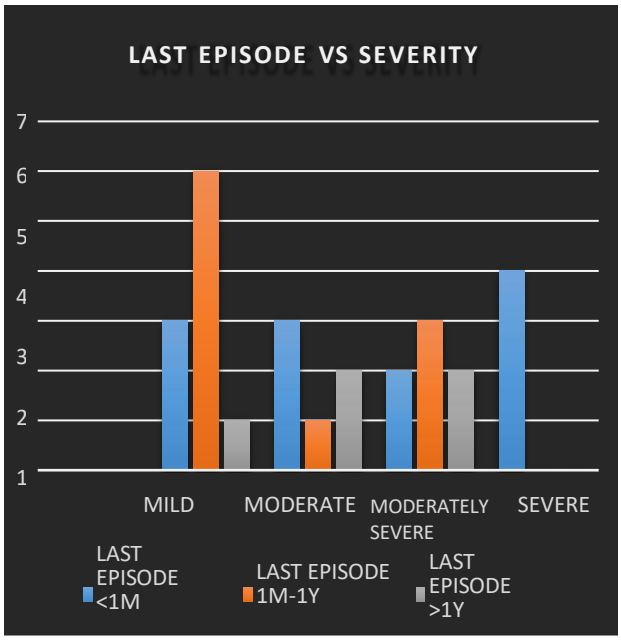

Figure 10: Last episode of seizure.

DISCUSSION

The aim of this study was to assess the prevalence and associated factors of depression among people with epilepsy at the epilepsy clinic at a tertiary care teaching hospital in Maharashtra. Out of 50 patients, around 27 patients (54%) showed signs of depression. Thus, 54% was the prevalence of depression in this study. Out of which 10 patients (20%) showed signs of mild depression, 6 patients (12%) showed signs of moderate depression, 7 patients (14%) showed signs of moderately severe depression whereas 4 patients (8%) showed signs of severe depression.

The prevalence of depression was slightly more in our study as compared to previous studies done in Poland (49.2%), Mexico (42.7%), Nigeria (45%) and Ethiopia (49.3%).[7] This variation may be due to using different diagnostic criteria or different rating scales in diagnosing depression and recruiting epileptic patients with different seizure types, variable frequency and severity, and with different antiepileptic medications.

But results were approximately similar to studies carried out in Iraq (51.6%) and Pakistan (60%).[8] The

results of this study confirm the studies done elsewhere as depression is a common co-morbid psychiatric disorder among epileptic patients.

We compared various socio-demographic details with the severity of depression. We did not find any association between sex, marital status, literacy, employment status, socio-economic status, family history and onset of epilepsy with depression. This can be due to multiple factors like reporting bias, inadequate sample size thus decreasing the power of the study. Previous studies have found higher prevalence of depression in males as compared to females. Also, few previous studies have shown that depression is more common in illiterate subjects as compared to literate subjects. This difference can be explained by the fact that Illiterate subjects were excluded in our study as PHQ-9 is a self-report tool.[9,10]

Our study highlighted that that around half (55%) of the depressed patients are in between age group of 30 to 50. This can be explained on the basis of social and financial impact of epilepsy in this most productive age group.

The prevalence of depression was more among subjects with poor compliance to anti-epileptic drugs and this difference was significant. Depression can result from the use of multiple anti-epileptic drugs, or it can occur due to discontinuation of anti-epileptic drugs which were masking depression due to their mood stabilizing properties.[11]

Also, subjects having uncontrolled seizures even on anti-epileptic drugs and who had last seizure within one month of the interview had significantly higher prevalence of depression. These findings were similar to previous study conducted in the UK. Studies have shown a bidirectional interaction between epilepsy and depression with up to 60% of epileptic patients develop depression and depression also increase risk of epilepsy up to 3-7-fold.[12] Many studies on epilepsy shows that reduced levels of serotonin, nor-epinephrine, dopamine and GABA lead to the kindling phenomenon of seizure foci, worsen seizure frequency and severity. These effects are reversed or blocked by anti-depressive drugs. Reduced activity of these neurotransmitters is a vital pathogenic mechanism of depressive disorders. Thus, depressive disorders and epilepsy may share common pathogenic mechanisms that facilitate occurrence of one in presence of other.[13]

Limitations

This study has some important limitations that should be kept in mind when interpreting the results. As it is a cross-sectional study design it does not confirm definitive cause and effect relationship. Also, there is overlapping of the symptoms between depression and epilepsy. Furthermore, the adverse effects of antiepileptic drugs overlap with symptoms of depression. Many aspects related to epilepsy like onset and depression, family history might have recalled bias.

CONCLUSION

Depression is an illness with a significant morbidity and mortality. Its association with epilepsy is very strong. Various factors contribute to depression which include compliance of drugs, last seizure episode, current status of epilepsy, etc. Unfortunately, depression among epileptics is very much under diagnosed and therefore, untreated. A psychiatrist should evaluate the patient with epilepsy for depression and appropriate treatment should be started.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Jain R, Salunkhe R, Chougule A, Kalwaghe A, Chaudhary A, Chaudhary B. Depression in adults with epilepsy attending epilepsy clinic in tertiary care hospital: an observational study. Int J Clin Trials 2022;9(2):77-83.